

In the claims:

A1

1. (currently amended) A software system implemented in a circuit for sensing pP-waves in a pacemaker, the system in combination with the circuit comprising:

means for detecting a plurality of atrial depolarization signals; and

means for pacing the a ventricle synchronous with a one of said detected plurality of atrial depolarization signals; and

wherein said means for detecting including comprising at least two subcutaneous electrodes in data communications with said means for pacing, and wherein said means for pacing further comprises having at least one pacing lead.

2. (original) The system of claim 1 wherein said means for pacing is a single chamber ventricular-inhibited pacemaker.

A2

3. (currently amended) The system of claim 2 wherein said pacemaker includes a hermetically sealed case including said at least two subcutaneous electrodes being peripherally distributed about the perimeter of the case.

A2
1
2
3
4

4. (currently amended) The system of claim 2 wherein said pacemaker is ~~coupled to the~~ at least one pacing lead comprises a ventricular pacing lead.

5. (currently amended) The system of claim 4 wherein said ventricular pacing lead is one of a unipolar pacing lead and a bipolar pacing lead structure.

6. (currently amended) A sensing circuitry operating in co-operation with a pacemaker, a lead and at least one plurality of subcutaneous electrode arrays (SEA) implemented for pacing the ventricle synchronous with atrial depolarization signals, the circuitry comprising:

an analog to digital converter (ADC) for converting a plurality of cardiac depolarization signals;

~~a plurality of filters coupled to said ADC;~~

a detector for detecting at least one of said plurality of cardiac depolarization signals coupled to said analog to digital converter (ADC) in ~~communication with said plurality of filters;~~

a digital to analog converter (DAC) coupled to the detector to convert at least some of the signals passing through said detector; and

a means for R-wave detection and a means for pP-wave detection coupled to said digital to analog converter (DAC).

A2
7.
B1

(currently amended) The circuit of claim 6 wherein said circuit further comprises: a plurality of signals include signal inputs, wherein said plurality of signal inputs further comprise: into

a signal input into said analog to digital converter (ADC) relating to for a ventricular electrogram (VEGM) data signal from said lead;
a signal input into said analog to digital converter (ADC) for a electrocardiogram (ECG) data signal from said at least one subcutaneous electrode array (SEA); and
a signal input into said analog to digital converter (ADC) for an electrocardiogram (ECG) data signal from an external lead.

8. (currently amended) The circuit of claim 7 wherein said ventricular electrogram (VEGM) data signal is transmitted via a ventricular lead.

9. (currently amended) The circuit of claim 7 wherein said electrocardiogram (ECG) data signal is transmitted from at least one external electrodes such as from a programmer implemented to validate said electrocardiogram (ECG) data signal from said subcutaneous electrode array (SEA).

10. (currently amended) The circuit of claim 7 wherein said ventricular electrogram (VEGM) data signals include a plurality of intrinsic ventricular

Sub B) depolarization waveforms that inhibit at least one pre-scheduled ventricular output pulse.

A2 11. (currently amended) The circuit of claim 7 wherein said electrocardiogram (ECG) data signal from the subcutaneous electrode array (SEA) is a primary input and provides the electrocardiogram (ECG) data signal to the analog to digital (ADC) on a substantially continuous basis.

12. (currently amended) A software system implemented in a circuit to monitor underlying sequences that are used in a single chamber ventricular-inhibited pacemaker, the sequencing method comprising:

starting a P-wave to R-wave (PR) cross check interval when a pP-wave threshold crossing is sensed by at least a pair of electrodes of a subcutaneous electrode array;

discounting a pP-wave if an R-wave is detected in the P-wave to R-wave (PR) cross check; and

triggering a PVARP interval when an R-wave is detected.

13. (currently amended) The sequencing method of claim 12 wherein said PVARP interval is used to blank blocks retrograde p-waves thereby providing protection against pacemaker-mediated tachycardia (PMT).

Application Number: 09/736,640
Art Unit: 3742

A2
Sub
131

14. (currently amended) The sequencing method of claim 12 wherein in the
event no P-wave threshold crossing is sensed:

extending a ventricular atrial (VA) interval is extended by an
atrioventricular (AV) interval period; and
emitting a ventricular pacing pulse when the atrioventricular (AV) interval
period expires is emitted if no p wave is sensed.